AP10875

Claims

1-17 Canceled

18. (New) A method for indirect tire pressure monitoring, the method comprising:

learning test variables (DIAG, SIDE, AXLE), which describe rotational movements of wheels;

learning at least one torsion natural frequency fp for at least one tire from oscillation behavior of individual tires;

determining at least one shift of the torsion natural frequency fP from at least one actually determined torsion natural frequency and from the at least one learnt torsion natural frequency; and

combining rolling circumference differences (DIAG, SIDE, AXLE) with the at least one shift of the torsion natural frequency fp in a joint warning strategy for detecting and warning of tire inflation pressure loss.

19. (New) A method according to claim 18, wherein either of the learning operations is not started until an automatically or manually generated signal (reset).

20. (New) A method according to claim 18, wherein one of the learning operations is executed while the tires heat up or cool down.

21 (New) A method according to claim 20, wherein a complete heating or cooling of the tires is detected from a uniform increase or reduction of the torsion natural frequencies fp of all tires to an almost constant final value.

22. (New) A method according to claim 20, wherein a change of an outside or ambient

temperature is evaluated with respect to the heating or cooling of the tires.

23. (New) A method according to claim 20, wherein a rain sensor is evaluated with respect to the heating or cooling of the tires.

24. (New) A method according to claim 20, wherein a length of a vehicle immobilization time allows obtaining information about a condition of the tires.

25. (New) A method according to claim 18, wherein one of the learning operations is executed in several different speed intervals, or wheel torque intervals, or lateral acceleration intervals.

26. (New) A method according to claim 18, wherein initially only a rough position of the torsion natural frequency fp is determined in a wide frequency range, such as a frequency range of roughly 20 hertz to roughly 60 hertz, with a coarse frequency resolution, such as a frequency resolution of approximately 1 hertz.

27. (New) A method according to claim 26, wherein subsequently a range is defined around the approximate position of the torsion natural frequency fp, in which a precise position of the torsion natural frequency fP is determined with a fine frequency resolution, such as with a frequency resolution of approximately 0.5 hertz.

28. (New) A method according to claim 18, wherein a warning regarding tire inflation pressure loss is issued when at least one rolling circumference difference (ΔDIAG, ΔSIDE, ΔAXLE) or at least one shift of the torsion natural frequency fP exceeds a previously fixed coarse threshold.

29. (New) A method according to claim 18, wherein a warning regarding tire inflation pressure loss is issued when the shifts of the torsion natural frequencies fP of all wheels exceed a previously fixed fine threshold.

30. (New) A method according to claim 18, wherein a warning regarding tire inflation pressure loss is issued when at least one rolling circumference difference (ΔDIAG, ΔSIDE, ΔAXLE) as well as at least one shift of the torsion natural frequency fP exceeds previously fixed fine thresholds.

31. (New) A method according to claim 30, wherein a warning regarding tire inflation pressure loss is issued only when the correlation between the rolling circumference differences (ΔDIAG, ΔSIDE, ΔAXLE) and the shifts of the torsion natural frequencies fP exceeds a predetermined limit value which indicates tire inflation pressure loss with an appropriate likelihood.

32. (New) A method according to claim 18, wherein in a joint warning strategy, the thresholds of the rolling circumference differences (ΔDIAG, ΔSIDE, ΔAXLE) for warning of tire inflation pressure loss are adapted depending on the shift of the torsion natural frequency fP.

33. (New) A method according to claim 18, wherein in a joint warning strategy, the thresholds of the rolling circumference differences (ΔDIAG, ΔSIDE, ΔAXLE) for warning of tire inflation pressure loss are adapted depending on the shift of the torsion natural frequency fP and on the correlation between the rolling circumference differences (ΔDIAG, ΔSIDE, ΔAXLE), and on the shifts of the torsion natural frequency fP.